

# MECHANICALLY ROBUST PAD INTERFACE AND METHOD THEREFOR

## Abstract

5           A composite bond pad that is resistant to external forces that may be applied during probing or packaging operations is presented. The composite bond pad includes a non-self-passivating conductive bond pad (134) that is formed over a semiconductor substrate (100). A dielectric layer (136) is then formed over the conductive bond pad (134). Portions of the dielectric layer  
10 (136) are removed such that the dielectric layer (136) becomes perforated and a portion of the conductive bond pad (134) is exposed. Remaining portions of the dielectric layer (136) form support structures (138) that overlie that bond pad. A self-passivating conductive capping layer (204) is then formed overlying the bond pad structure, where the perforations in the  
15 dielectric layer (136) allow for electrical contact between the capping layer (204) and the exposed portions of the underlying bond pad (134). The support structures (138) provide a mechanical barrier that protects the interface between the capping layer (204) and the bond pad (134). Additional mechanical robustness is achieved when the support structures  
20 (138) remain coupled to the unremoved portion of the dielectric layer (136), as forces buffered by the support structures (138) are distributed across the dielectric layer (136) and not concentrated at the bond pad location.